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Publication date:
2018

Document Version
Early version, also known as pre-print

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Laursen, M. F., Agger, R., & Kofod-Olsen, E. (2018). *Investigations on a Novel Dendritic Cell-Targeted Adjuvant for Anti-Cancer Therapy*. Abstract from International Conference on Progress in Vaccination Against Cancer, Oslo, Norway.

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Investigations on a Novel Dendritic Cell-Targeted Adjuvant for Anti-Cancer Therapy

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Immunotherapy has recently emerged as a promising form of treatment for several kinds of cancer. With the introduction of check-point blockade therapy remarkable results in a subset of patients have been observed. However, some patients do not benefit from this treatment, possibly due to the strength of the immunosuppressive tumor environment in these patients. To circumvent this, finding novel approaches for activation of the immune system is of high priority.

Damage-associated molecular patterns (DAMPs) delivered to dendritic cells (DCs) *in situ* may aid in overcoming the suppressive tumor milieu and lead to DC maturation and activation of an efficient immune response. Recent evidence has shown that the cGAS/STING pathway, which can be stimulated by dsDNA, a potent DAMP, plays an important role in immune activation against cancer in murine tumor models.

We have developed a novel DC-targeted adjuvant and tested it on human dendritic cells *in vitro*. We found that the targeted adjuvant was indeed able to activate human DCs, shown by upregulation of DC maturation markers and an increased ability to activate T cells. We have also shown that the observed maturation of human DCs is indeed dependent on the cGAS/STING pathway.